SECTION 34 05 42

COMMON MATERIALS AND METHODS FOR TRAIN CONTROL

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Resistors

B. Capacitors

C. Reactors

D. Electrical Connectors

E. Terminal Blocks

1.02 MEASUREMENT AND PAYMENT

A. General: Common materials and methods for train control, as specified herein, will not be measured separately but will be paid for as part of the Contract lump sum price for Automatic Train Control System Work as indicated in the Bid Schedule of the Bid Form.

1.03 REFERENCES

A. American Railway Engineering and Maintenance-of-Way Association (AREMA)

1. (Include applicable Part Numbers after they are verified)

B. American Society of Testing Materials (ASTM)

1. ASTM A-123

1.04 SUBMITTALS

A. General: Refer to Section 01 33 00 - Submittal Procedures, and Section 01 33 23 - Shop Drawings, Product Data, and Samples, for submittal requirements and procedures.

B. Submit product information and catalog cuts of equipment and devices specified herein.

PART 2 - PRODUCTS

2.01 RESISTORS

A. All resistors, other than those required for electronic circuits shall meet the requirements of the AREMA Signal Manual, Part 14.2.15.

2.02 CAPACITORS

A. Capacitors provided for power factor improvement of ATC power distribution systems shall meet the requirements of the AREMA Signal Manual, Part 9.3.1.

B. All other capacitors provided, except those 10 mfd or less in electronic modules, shall have a maximum tolerance of plus 75 percent, minus 10 percent, and shall be rated for at least 1.5 times the maximum peak voltage to which they will be subjected in operation.

2.03 REACTORS

A. All reactors other than those in electronic circuits shall meet the requirements of the AREMA Signal Manual, Part 14.2.20.

2.04 ELECTRICAL CONNECTORS

A. A minimum of electrical connectors, and as few different sizes and types as practicable, shall be provided in all equipment. All connections shall be made using lugs or crimp or bolted connectors, as applicable. Connectors in vital circuits shall have a surface leakage distance of not less than 1/4 inch between metallic parts. The insulation shall withstand 3,000 VAC for one minute between metallic parts. Surface leakage distance from pin-to-pin and from pin-to-shell shall not be provided by selective use of pins. Connectors in non-vital circuits shall have a surface leakage distance not less than 0.1 inch between metallic parts. The insulation for connectors in non-vital circuits shall withstand 900 VAC for one minute between metallic parts.

2.05 TERMINAL BLOCKS

A. Terminal blocks shall be modular with solderless connections of the quick-connect tab, binding post and nut, screw terminal barrier, or wire wrap type. Terminal block insulating material shall conform to the requirements of the AREMA Signal Manual, Part 14.1.5;

B. Terminal blocks for vital circuits shall conform to the AREMA Signal Manual, Part 14.1.6. Ring tongue terminals shall be provided on all wires connected to the binding posts.

C. Solderless wire terminals shall conform to the AREMA Signal Manual, Part 14.1.1. Product information for terminals and crimping tools shall be submitted.

2.06 TRAIN CONTROL MISCELLANEOUS MATERIALS AND HARDWARE

A. Protective Hose Conduit: Protective hose conduit shall be braided synthetic material pneumatic type hose with a neoprene inner tube and cover. Hose shall be oil, water, abrasion, and ultraviolet resistant. Minimum inside diameter shall be 1/2 inch. Minimum outside diameter shall be one inch. Hose connectors shall be brass. Hose clamps shall be stainless steel.

B. Hardware: All hardware provided for outdoor installations shall be stainless steel unless indicated otherwise. Bolts, nuts, and threads shall conform to the AREMA Signal Manual, Part 14.6.20. Lock washers shall conform to AREMA Signal Manual, Part 14.6.21. Bolts, nuts, and washers for mounting and supporting equipment in indoor areas shall be cadmium plated, iridite dipped, or stainless steel. Brackets for mounting and supporting equipment and material in indoor areas shall be pre-galvanized then zinc chromate coated after fabrication.

Brackets for outdoor installations shall be hot-dipped galvanized after fabrication in accordance with ASTM A-123. Damaged areas shall be repainted with zinc chromate after installation. Drive pins, lock washers, and hex nuts used with the B-188-3Q rail connections as indicated shall be made of carbon steel in lieu of stainless steel.

PART 3 – EXECUTION

Not Used

END OF SECTION 34 05 42